

THURSDAY, DECEMBER 19, 1878

## PARADOXICAL PHILOSOPHY

*Paradoxical Philosophy. A Sequel to the "Unseen Universe."* (London: Macmillan and Co., 1878.)

ON opening this book, the general appearance of the pages, and some of the phrases on which we happened to light made us somewhat doubtful whether it lay within our jurisdiction, as it is not the practice of NATURE to review either novels or theological works.

In the dedication, however, the book is described as an account of the *Proceedings* of a learned society, a species of literature which we are under a special vow to rescue from oblivion, even when, as in this case, the proceedings are those of one of those jubilee meetings, in which learned men seem to aim rather at being lively than scientific.

On the title-page itself there is no name to indicate whether the author is one of those who by previous conviction have rendered themselves liable to our surveillance, but on the opposite page we find "The Unseen Universe; or, Physical Speculations on a Future State," to which this book is a "Sequel," ascribed to the well-known names of Balfour Stewart and P. G. Tait.

Mr. Browning has expressed his regret that the one volume in which Raffaele wrote his sonnets, and the one angel which Dante was drawing when he was interrupted by "people of importance," are lost to the world. We shall therefore make the most of our opportunity when two eminent men of science, "driven," as they tell us, "by the exigencies of the subject," have laid down all the instruments of their art, shaken the very chalk from their hands, and, locking up their laboratories, have betaken themselves to those blissful country seats where Philonous long ago convinced Hylas that there can be no heat in the fire and no matter in the world; and where in more recent times, Peacock and Mallock have brought together in larger groups the more picturesque of contemporary opinions.

In this book we do not indeed catch those echoes of well-known voices in which the citizens of the "New Republic" tell us how they prefer to regard themselves as thinking, taking care, all the while, that no actual thought shall disturb their enjoyment of the luxury of extravagant opinion. The members of the Paradoxical Society, with their guest, Dr. Hermann Stofkraft, are far too earnest to adopt this pose of mind, but they exhibit that sympathy in fundamentals overlaid with variety in opinions which is one of the main conditions of good-fellowship. Dr. Stofkraft, in spite of his name and of his office as the single-handed opponent of the thesis of the book, makes it his chief care so to brandish his materialistic weapons as not to hurt the feelings of his friends; and when, near the end of the book, he gets a little out of temper, it is about matters with which a materialist, as such, has no concern.

As the book is not a novel there is no literary reason for not telling "what became of the Doctor," as narrated in the last chapter. He goes to Strathkelpie Castle to take part in an investigation of spiritualistic phenomena. He begins by detecting the mode in which one young lady performs her spirit-rapping, but forthwith falls into an

"electro-biological" courtship of another, and, this proving successful, he is persuaded by his wife and her priest to renounce the black arts in the lump as works of the foul fiend; and then we are told that, having quieted his spirit by a few evolutions in four dimensions, he has now settled down to compose his "Exposition of the Relations between Religion and Science," which he intends to be a thoroughly matured production.

The Doctor—and, indeed, most of the other characters—are no mere materialised spirits, or opinions labelled with names of the *Euphranor* and *Alciphron* type. They do not reduce their subject to a *caput mortuum* by an exhaustive treatment, but take care, like well-bred people, to drop it and pass on to another before we have time to suspect that the last word has been said.

We cannot accuse the authors of leading us through the mazy paths of science only to entrap us into some peculiar form of theological belief. On the contrary, they avail themselves of the general interest in theological dogmas to imbue their readers at unawares with the newest doctrines of science. There must be many who would never have heard of Carnot's reversible engine, if they had not been led through its cycle of operations while endeavouring to explore the Unseen Universe. No book containing so much thoroughly scientific matter would have passed through seven editions in so short a time without the allurements of some more human interest.

Nor need we fear to draw down on NATURE the admonition which fell on the inner ear of the poet—

"Thou pratest here where thou art least;  
This faith hath many a purer priest,  
And many an abler voice than thou."

For even those words and phrases which seemed at first sight to remove the book from the field of our criticism, are found on a nearer view to have acquired a new, and indeed a *paradoxical* sense, for which no right of sanctuary can be claimed.

The words on the title-page: "In te, Domine, speravi, non confundar in æternum," may recall to an ordinary reader the aspiration of the Hebrew Psalmist, the closing prayer of the "Te Deum," or the dying words of Francis Xavier; and men of science, as such, are not to be supposed incapable either of the nobler hopes or of the nobler fears to which their fellow-men have attained. Here, however, we find these venerable words employed to express a conviction of the perpetual validity of the "Principle of Continuity," enforced by the tremendous sanction, that if at any place or at any time a single exception to that principle were to occur, a general collapse of every intellect in the universe would be the inevitable result.

There are other well-known words in which St. Paul contrasts things seen with things unseen. These also are put in a prominent place by the authors of the "Unseen Universe." What, then, is the Unseen to which they raise their thoughts?

In the first place the luminiferous æther, the tremors of which are the dynamical equivalent of all the energy which has been lost by radiation from the various systems of grosser matter which it surrounds. In the second place a still more subtle medium, imagined by Sir William Thomson as possibly capable of furnishing an explana-

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tion of the properties of sensible bodies; on the hypothesis that they are built up of ring vortices set in motion by some supernatural power in a frictionless liquid: beyond which we are to suppose an indefinite succession of media, not hitherto imagined by any one, each manifoldly more subtle than any of those preceding it. To exercise the mind in speculations on such media may be a most delightful employment for those who are intellectually fitted to indulge in it, though we cannot see why they should on that account appropriate the words of St. Paul.

NATURE is a journal of science, and one of the severest tests of a scientific mind is to discern the limits of the legitimate application of scientific methods. We shall therefore endeavour to keep within the bounds of science in speaking of the subject-matter of this book, remembering that there are many things in heaven and earth which, by the selection required for the application of our scientific methods, have been excluded from our philosophy.

No new discoveries can make the argument against the personal existence of man after death any stronger than it has appeared to be ever since men began to die, and no language can express it more forcibly than the words of the Psalmist:—

“His breath goeth forth, he returneth to his earth; in that very day his thoughts perish.”

Physiology may supply a continually increasing number of illustrations of the dependence of our actions, mental as well as bodily, on the condition of our material organs, but none of these can render any more certain those facts about death which our earliest ancestors knew as well as our latest posterity can ever learn them.

Science has, indeed, made some progress in clearing away the haze of materialism which clung so long to men's notions about the soul, in spite of their dogmatic statements about its immateriality. No anatomist now looks forward to being able to demonstrate my soul by dissecting it out of my pineal gland, or to determine the quantity of it by the process of double weighing. The notion that the soul exerts force lingered longer. We find it even in the late Isaac Taylor's “Physical Theory of a Future State.” It was admitted that one body might set another in motion; but it was asserted that in every case, if we only trace the chain of phenomena far enough back, we must come to a body set in motion by the direct action of a soul.

It would be rash to assert that any experiments on living beings have as yet been conducted with such precision as to account for every foot-pound of work done by an animal in terms of the diminution of the intrinsic energy of the body and its contents; but the principle of the conservation of energy has acquired so much scientific weight during the last twenty years that no physiologist would feel any confidence in an experiment which showed a considerable difference between the work done by an animal and the balance of the account of energy received and spent.

Science has thus compelled us to admit that that which distinguishes a living body from a dead one is neither a material thing, nor that more refined entity, a “form of energy.” There are methods, however, by which the application of energy may be directed without interfering

with its amount. Is the soul like the engine-driver, who does not draw the train himself, but, by means of certain valves, directs the course of the steam so as to drive the engine forward or backward, or to stop it?

The dynamical theory of a conservative material system shows us, however, that *in general* the present configuration and motion determines the whole course of the system, exceptions to this rule occurring only at the instants when the system passes through certain isolated and singular phases, at which a strictly infinitesimal force may determine the course of the system to any one of a finite number of equally possible paths, as the pointsman at a railway junction directs the train to one set of rails or another. Prof. B. Stewart has expounded a theory of this kind in his book on “The Conservation of Energy,” and MM. de St. Venant and Boussinesq have examined the corresponding phase of some purely mathematical problems.

The science which rejoices in the name of “Psychophysik” has made considerable progress in the study of the phenomena which accompany our sensations and voluntary motions. We are taught that many of the processes which we suppose entirely under the control of our own will are subject to the strictest laws of succession, with which we have no power of interfering; and we are shown how to verify the conclusions of the science by deducing from it methods of physical and mental training for ourselves and others.

Thus science strips off, one after the other, the more or less gross materialisations by which we endeavour to form an objective image of the soul, till men of science, speculating, in their non-scientific intervals, like other men on what science may possibly lead to, have prophesied that we shall soon have to confess that the soul is nothing else than a function of certain complex material systems.

Men of science, however, are but men, and therefore occasionally contemplate their souls from within. Those who, like Du Bois-Reymond, cannot admit that sensation or consciousness can be a function of a material system, are led to the conception of a double mind.

“On the one side the acting, inventing, unconscious material mind, which puts the muscles into motion, and determines the world's history; this is nothing else but the mechanics of atoms, and is subject to the causal law, and on the other side the inactive, contemplative, remembering, fancying, conscious, immaterial mind, which feels pleasure and pain, love, and hate; this one lies outside of the mechanics of matter, and cares nothing for cause and effect.”

We might ask Prof. Du Bois-Reymond which of these it is that does right or wrong, and knows that it is his act, and that he is responsible for it, but we must go on to the other view of the case, which Dr. Stofkraft alludes to at p. 78, although by some law of the *Paradoxical*, he is not allowed to pursue a subject which might have afforded excellent sport to the Society.

“I feel myself compelled to believe,” says the learned Doctor, “that all kinds of matter have their motions accompanied with certain simple sensations. In a word, all matter is, in some occult sense, alive.”

This is what we may call the “levelling up” policy, and it has been expounded with great clearness by Prof.

von Nägeli in a lecture, of which a translation was given in *NATURE*, vol. xvi. p. 531.

He can draw no line across the chain of being, and say that sensation and consciousness do not extend below that line. He cannot doubt that every molecule possesses something related, though distantly, to sensation, "since each one feels the presence, the particular condition, the peculiar forces of the other, and, accordingly, has the inclination to move, and under circumstances really begins to move—becomes alive as it were;" . . . "If, therefore, the molecules feel something which is related to sensation, then this must be pleasure if they can respond to attraction and repulsion, *i.e.*, follow their inclination or disinclination; it must be displeasure if they are forced to execute some opposite movement, and it must be neither pleasure nor displeasure if they remain at rest."

Prof. von Nägeli must have forgotten his dynamics, or he would have remembered that the molecules, like the planets, move along like blessed gods. They cannot be disturbed from the path of their choice by the action of any forces, for they have a constant and perpetual will to render to every force precisely that amount of deflexion which is due to it. Their condition must, therefore, be one of unmixed and unbroken pleasure.

But even if a man were built up of thinking atoms would the thoughts of the man have any relation to the thoughts of the atoms? Those who try to account for mental processes by the combined action of atoms do so, not by the thoughts of the atoms, but by their motions.

Dr. Stoffkraft explains the origin of consciousness at p. 77 and at p. 107. We recommend to his attention Mr. Herbert Spencer's statement in his "Principles of Psychology," § 179, where he shows in a most triumphant manner how, under certain circumstances, "there must arise a consciousness." Such statements, carefully studied, may contribute to the further progress of science in the path which we have been describing, by showing more clearly that consciousness cannot be the result of a plexus of nervous communications any more than of a congeries of plastidule souls.

Personality is often spoken of as if it were another name for the continuity of consciousness as reproduced in memory, but it is impossible to deal with personality as if it were something objective that we could reason about. My knowledge that I am is quite independent of my recollection that I was, and also of my belief that, for a certain number of years, I have never ceased to be. But as soon as we plunge into the abysmal depths of personality we get beyond the limits of science, for all science, and, indeed, every form of human speech, is about objects capable of being known by the speaker and the hearer. Whenever we pretend to talk about the Subject we are really dealing with an Object under a false name, for the first proposition about the Subject, namely, "I am," cannot be used in the same sense by any two of us, and therefore can never become part of science at all.

The progress of science, therefore, so far as we have been able to follow it, has added nothing of importance to what has always been known about the physical consequences of death, but has rather tended to deepen the distinction between the visible part, which perishes before

our eyes, and that which we are ourselves, and to show that this personality, with respect to its nature as well as to its destiny, lies quite beyond the range of science.

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### SCIENCE CLASS-BOOKS

*The London Science Class-Books.* Edited by G. Carey Foster, F.R.S., and Philip Magnus, B.Sc. *Biological Series.* 1. *Botany—Outlines of Morphology and Physiology.* 2. *Botany—Outlines of Classification of Plants.* By W. Ramsay McNab, M.D. 3. *Zoology of the Vertebrate Animals.* 4. *Zoology of the Invertebrate Animals.* By Prof. A. Macalister. (London: Longmans, Green and Co., 1878.)

THE editors of this series of Elementary Science Class-Books intend that the works shall all be composed with special reference to school teaching; that they shall be suited to the capabilities and comprehension of boys and girls during their school course, while they shall at the same time afford trustworthy and accurate information presented in such a way that it may serve as a basis for more advanced study. In thus announcing their scheme the editors would seem to indicate that they have learned to appreciate the very great want that exists in all our public schools of just such a series of class-books as they undertake to supply; and though the standard at which they aim cannot be regarded as a high one, still most judges will agree that it is both a suitable and a proper one, and it is one that we wish the editors every success in their carrying of it out. If the natural sciences are to be taught in our schools the scholars must have class-books of these sciences, and we take it as a good sign that the demand for such class-books is in this new series being supplied. The information in the present series is to be accurate and trustworthy, and the names of the authors of the four books already published of the biological series is a sufficient guarantee that this is so. The information is to be suited to the capabilities of girls and boys during their school-days, and still it is to be presented in such a way as to form the basis of a higher study. The authors' names, however distinguished, will be no necessary guarantee of this. It is not given to every one to be able to write an elementary book that may serve as the basis for a more advanced study. In the first two class-books on our list the author indeed does not even make the attempt. In his preface Prof. McNab declares that it has been thought advisable to make his class-books on Botany such as would serve as a basis for the teaching in the higher classes of schools, and such as would supply the wants of medical students and others wishing to acquire a knowledge of the subject. We think this a pity, for we certainly at once miss that strictly elementary treatment of the subject, that full statement and discussion of the fundamental facts thereof, which we were led to expect, not by the author, but by his editors; and however useful and instructive these two class-books may be, the aim that we fancy they should have kept in view is lost in the endeavour, to quote their authors' own words, that they should "serve as an introduction to the celebrated textbook of the distinguished German botanist, whose "Lehr-